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Extended/distributed cognition and the native speaker

Citation for published version:

Joseph, J 2017, 'Extended/distributed cognition and the native speaker', *Language and Communication*, vol. 57, pp. 37-47. <https://doi.org/10.1016/j.langcom.2016.12.008>

Digital Object Identifier (DOI):

[10.1016/j.langcom.2016.12.008](https://doi.org/10.1016/j.langcom.2016.12.008)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Language and Communication

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EXTENDED/DISTRIBUTED COGNITION AND THE NATIVE SPEAKER

1 Native speaker: Liberation and oppression

Nationalism has been the great curse of humanity.
In no other shape has the Demon of Ignorance
assumed more hideous proportions; to no other
obsession do we yield ourselves more readily.

Sir William Osler, Chauvinism in medicine (1902)

Breathes there the man, with soul so dead,
Who never to himself hath said,
This is my own, my native land!

Sir Walter Scott, The lay of the last minstrel (1805)

Every concept, model and technique devised by theoretical or applied linguists has its limits in terms of applicability and shelf life. It is futile to assess them simply as right or wrong; in the long run, to paraphrase Keynes, they are all dead wrong. What needs to be asked is: right or wrong *for what*? What does the concept, model or technique make it possible to do, and at what cost? Could an alternative one do it better, or at less cost?

The concept of the native speaker has enabled a great deal over the course of its history, including the educational liberation of millions – only in certain contexts, but enough for the concept to be accepted for decades by linguists as liberal and progressive. This blinded them to how, in other contexts, it has held back millions of others, in the worst cases to the point that to call it oppressive is no exaggeration.

The native speaker appeared to be an egalitarian concept because it applied equally to everyone. Linguistics was committed to a descriptivism in which it was axiomatic that “the native speaker cannot err” (except by a slip of the tongue, an accident of processing that reveals no flaw in knowledge of the language). This creed united linguists bitterly opposed to one another over virtually every other aspect of linguistic analysis. The native speaker’s authority was as fundamental for sociolinguists as for generativists and applied linguists concerned with language teaching and assessment.

One of the concept’s shining moments came with the Black English trial (*Martin Luther King Junior Elementary School Children et al. v. Ann Arbor School District*) in Michigan in 1979, where the reason and passion of William Labov helped to persuade the court of the equal authority of every individual concerning the structure of his or her native dialect (see Labov, 1982). This was no small feat, given that initially it was unclear to the court that Black English has a regular structure, rather than just being a cover term for haphazard errors in Standard English. At stake was ensuring that speakers of non-standard English have the same educational rights already granted to second-language speakers by the US Supreme Court in the case of *Lau v. Nichols* (1974).

This liberating side of the native speaker concept depended on a wider acceptance that all individuals, given equal opportunities, would develop to their full potential. If some are inherently

endowed with particular abilities and talents, this pertains to every nationality and race. The law has a duty to ensure that the same opportunity for development is provided for individuals of whatever origin and ability.

Here a paradox arises. Educational systems are bound up with languages. If the world were such that every place had one language, and everyone stayed in their birthplace their whole life, equal opportunity based on equality of native speakerhood might be viable on the linguistic level. But we inhabit a world in which people move about, and always have done so, whether by choice or force or through some economic draw that makes the choice unaccidental though not exactly forced. Even those who do not move will have others move in on them, welcomed or not. All this population dynamic has its linguistic effects – not that languages would fail to change even without the emigration and immigration. No new generation speaks exactly like the one before it, partly because children learn the language by inference, rather than having it transferred to them wholesale, and some of their inferences will be innovative; partly because innovation is at least as deeply rooted in human nature as continuity is, and in each new generation there are some, at least, who want to perform their dynamism, which indexes their fitness and uniqueness.

Not only do languages change internally, but language choice changes: population movements over centuries have led to a small number of languages carrying particular advantages in terms of economic edge and social and educational power. A native speaker of English is the equal of a native speaker of East Greenlandic in their linguistic authority for how to say something in their respective mother tongues, but not on the practical level of the opportunities open to each of them, outside of Eastern Greenland, or for that matter within it.

One might have expected all this historical movement to have led people generally to think of their languages as dissociated from the place they inhabit. But all that dynamism and enrichment brings with it a feeling of cultural uprootedness that is discomfiting. A sense of security is found in locating oneself in a place – not just geographical, but cultural, including linguistic – where one's ancestors thrived, or at any rate survived. Security, and *soul*.

Scott could well have written "my native tongue" rather than "land" in *The lay of the last minstrel*, except that it was Scotland he was writing about, in English. Not Scots, not Gaelic, not Pictish, not Brythonic. The identity of Scotland's "authentic" language was a matter of much dispute in his time, as now. For individuals, too, the identity of their native language may be unclear if they are brought up in a multilingual setting. But despite the tenuousness of the connection of language with place – or rather, because of it – the link can undergo cultural strengthening. Scott goes on to say that "If such there breathe, go, mark him well; / For him no Minstrel raptures swell," and when this "wretch" dies, the "dust, from whence he sprung" will receive him "Unwept, unhonoured, and unsung." Minstrels sing only of the native sons whose souls are inseparable from their nativeness. The song is how nativeness is constructed, and maintained. It is powerful stuff, and a double-edged sword, as Osler recognized in the first epigram above.

In schools and universities, the study of languages, native or foreign, was traditionally text-based, grounded in grammars, scripture and literature, including the minstrel's lay. Indeed, for nineteenth and early twentieth-century academics, literature meant poetry first and foremost. It was in poetry that the genius of the language and the soul of the race manifested themselves most directly. Novels, in contrast, were classed as entertainment, as was theatre unless written in poetic form.

Introductory foreign-language courses aimed to prepare students for literary study, knowledge of which would ultimately form the basis for assessing their achievement-*cum*-proficiency.

The reorientation of language teaching and testing toward the native speaker brought a liberation to those considerable numbers of students whose interest lay in learning the language, rather than mastering its literature. This was a long and difficult struggle, particularly in universities, where those who occupied the senior ranks of language departments had themselves thrived under the literature-based system and based their careers and status upon it. So long as students were required to take a classical or modern foreign language, the old system could endure. But decade after decade, in the English-speaking world, such requirements were weakened or dropped, and by the 1980s were becoming the exception rather than the rule. Now academic language teaching had to adjust to what students wanted from it: a decoupling of language from literature, or at least an expansion of literature to include film and cultural studies, authentic materials (where “authentic” meant *not* literary or artistic), use of the language in business settings, newspapers, advertisements and the like.

In parallel with this, traditional grammar ceased to be part of the curriculum. Native speakers, after all, do not learn the language by studying grammar. They learn it through communicative use of the language, and since the native speaker was now the ideal end point of the language learning process, teaching was reoriented toward “natural” communication.¹ The curricular changes posed fundamental challenges for assessment. One of the advantages of traditional grammar was its teachability and testability: a student either does or does not know the genitive plural ending for a Russian noun. But under a communicative ideology, students can make themselves understood most of the time even when they get the ending wrong, as native speaking children sometimes do; so it is no longer an accurate reflection of their proficiency to give them a point for getting the ending right, and a zero for getting it wrong.

It was a struggle to reimagine assessment based on communication. What sort of communication? Buying vegetables at a market? In practice, most people can manage such exchanges even without having a language in common with the seller. If replacing mastery of the literature with native speaker competence was a liberation for many students, it was not so for those charged with assessing them; but then it hardly makes sense to fit the aims of teaching to the convenience of assessment. On the other hand, if the assessment cannot be done in a meaningful way that helps students to pinpoint where their strengths and weaknesses lie and guides them to achieve their educational and broader life goals, and if moreover the assessment is based on an ideal that by definition they can never attain, then serious questions need to be raised.

2 Conceptions of language and what they imply about native speakers

It was in this context that Davies (1991, 2003, 2006) exposed the native speaker as a “myth” with dangerous, quasi-racist consequences for language teaching and above all testing. It is mythical because in reality there is no clear boundary between native and non-native speakers. Some people

¹ A concise history of these developments in the context of English Language Teaching can be found in Howatt & Smith (2014).

learn a language to such a level of competence, even starting well after puberty, that they are scarcely distinguishable from native speakers. Whatever fine differences in grammaticality judgements psycholinguists may detect belong to the research laboratory, not to everyday life. In Davies's view, the native speaker myth sends learners the message that, however strong their motivation, however great their efforts, they can never reach the ultimate goal of foreign-language teaching, by virtue of their birth and other conditions beyond their control. It is thus an unjustifiable form of social exclusion, which applied linguists should combat rather than reinforce.

His last book, Davies (2013), brought another advance in his decades-long campaign against the conceptual power of the native speaker – now doubled by the “native user” – as the implicit or explicit target of language teaching and the criterion for assessing the proficiency of second language learners (see also Joseph, 2012a). I shall return to the native user and the advantages Davies saw it as offering. First, however, a résumé of how beliefs have developed about what native speakers know will uncover the conceptual baggage the term carries, and locate where it stands in the current debates over the nature of mind.

The term *native speaker* dates back only to the nineteenth century (Hackert, 2012, offers a history and assessment of the concept). It took until the latter half of the twentieth century for its impact on theoretical and applied linguistics to be felt most strongly, as it came to be bound up with Chomsky's (1965, p. 3) definition of the object of study of linguistics as the knowledge of language possessed by an “ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly.” In the same period, the ground was being laid for a challenge to the conception of knowledge that underlay Chomsky's redefinition, notably in the phenomenology of Maurice Merleau-Ponty, though from other quarters as well, including computational linguistics.

Across cultures and across centuries, the history of the study of language and languages has predominantly been the study of texts, in an attempt to understand what they mean, how they persuade and, where applicable, the nature of their artistic composition. Grammar originated as the analysis of texts for these purposes, though its usefulness for teaching textual exegesis, rhetoric and poetics soon became apparent, as did its usefulness for teaching languages. The emergence in the late middle ages of *grammatica speculativa*, “mirror grammar,” was based on the belief that a grammar and indeed a language are more than something “out there” in texts (written or spoken), but in the mind; that a language is a reflection and representation of the structure of the universe, contained in the knowledge of those who speak the language. Only rarely does any concern arise in this period about linguistic differences, though those writing about language were well aware of them, since the Latin they analysed and wrote in was not their mother tongue.

Analysing the structure of language as a way of understanding the workings of the mind came to the fore again in late seventeenth and eighteenth-century France, with the Port Royal grammarians, followed by Beauzée, Condillac and others. In the first half of the nineteenth century the centre of interest shifted toward working out the historical development of languages, but the link to the structure of mind did not disappear – in fact its crystallizing moment came only in 1836, with the posthumous publication of a work by Wilhelm von Humboldt. He had been formed intellectually in the turn of the nineteenth century milieu where the earlier French ideas were still current, alongside the newer German Romanticism that identified a language with the “national soul” of its speakers (à

la Walter Scott in one of the epigrams to this article) – but it ceased to be the focus of detailed linguistic analysis, instead becoming the concern of psychologists and philosophers.

Linguists sometimes had a look in on the language-mind link, notably Edward Sapir and his protégé Benjamin Lee Whorf in the 1920s and 1930s, but on the whole the rise of academic linguistics brought a focus on the analysis of languages as manifested “out there,” rather than “in here.” This changed dramatically in the 1960s, when Chomsky’s transformational-generative grammar became the mainstream approach. Chomsky later termed its object of study “I-language,” where the I stands for internalized, individual and intensional (Chomsky 1986, pp. 22, 24). Even approaches to theoretical linguistics opposed to Chomsky’s did not generally deviate from the “in here” focus; Halliday’s (1975) language as social semiotic, for example, retained an intense interest in how precisely that social semiotic comes to be known by a child; even Roy Harris’s integrationism, in attempting to refound the understanding of language on communication, made the “biomechanical” one of its three spheres of analysis, along with the macrosocial and the circumstantial.

Five basic approaches to locating language are current in the literature. Each of them has implications for the concept of native speaker as it is used in both theoretical and applied linguistics. I shall resume them briefly; a fuller treatment can be found in Joseph (2016a).

- A. Language is in the brain (intracranialism)
- B. Language is in the neuro-muscular system, with the brain as its centre (internally-extended cognition, including Bourdieu’s habitus)
- C. Language extends not just through the neuro-muscular system but to devices beyond the body that are as available and reliable as internal cognition is (externally-extended cognition) ²
- D. Language extends beyond the individual to include other people (distributed cognition, situated cognition)
- E. Language has no location, because it lacks extension

What approaches (B) to (E) share is a determination to move beyond the conception of knowledge of language as a collection of representations stored in some module of the mind or location within the brain. That what we call having or not having a particular language involves something physical in us seems clear enough, given that a physical event such as a stroke or other damage to the nervous system can make us lose it; and there are certain regular correlations, observable across individuals and languages, between damage to a particular part of the brain and loss or weakening of particular structures or functions. But intracranialism leads to abstraction away from physical reality when it proceeds “as if one can assume that it is possible to consider language separately from speech and the hearing of speech, sight separately from eye and head movement and exploratory activity, and the brain and nervous system as operating without interdependence on other systems within the body” (Braine, 2014, p. 53).

Two powerful correlations between parts of the brain (Broca’s and Wernicke’s areas) and types of language loss were established in the 1860s and 1870s and still have to be memorized and

² Variants of (C) and (D) which take the internal part to be intracranial rather than internally extended are logically possible and may be held by some, but I have not encountered them.

reproduced by first-year linguistics students today. In so doing, the students continually re-establish the faith that language is located in the brain and is further localizable within it. But linguistics is not such a historically-oriented discipline that students would be made to memorize these nineteenth-century discoveries if there were more recent ones of a comparable generalizability. The exceptional nature of Broca's and Wernicke's areas is camouflaged by the paedagogical role accorded to them, which matters because the idea of brain localization adds greatly to the scientific allure of linguistics, as it already did when Saussure made a point of including Broca's area in his lectures on general linguistics (see Joseph, 2012b, p. 575). The actual messiness and unpredictability of what happens where in a single brain, let alone across brains, needs to be swept under the rug if one is to persuade funding agencies and university administrations that unprecedented progress is being made in scientific understanding of language and the brain, which implies findings that apply to everyone – whence some of the resistance to extended and distributed approaches, though not all of it.

3 Intracranialism and the neuro-muscular system

Arguments about what knowledge is and what form it takes in whoever or whatever has it are as old as history itself. Through the Middle Ages and well into the modern period, medical and philosophical writings generally located memory in the posterior ventricle (or cell) of the brain, while the anterior ventricle was where sensory input and motor output were regulated by the common sense, and the middle ventricle was responsible for reasoning. The rebirth of anatomical study in the early modern period brought improved understanding of the nervous system, and medical observation of reflexes showed that some nervous-muscular reactions involved only the spinal cord and not the brain. In the seventeenth century, Hobbes and Locke put forward a theory of associations as the source of knowledge, which in the mid-eighteenth century Hartley would develop into an account of how knowledge is not only acquired but stored, based on what he termed nervous vibrations. This "associationism" persisted in Britain, surviving periods in which rival theories were more to the fore.

In the second half of the nineteenth century, Alexander Bain professed an up-to-date version of associationism that took account of contemporary medical science. It became the new modernism of the younger generation of both English-language and French-language psychologists. Bain treated memory as a physical phenomenon, with a description that prefigures the connectionism of Rumelhart et al. (1986): currents of force passing through nervous circuits create "specific growths in the cell junctions" (Bain, 1875, p. 91). The stronger the original force, the more vivid the impression left on the circuit, quite like the "weights" of connectionist analysis.

As for the mental recollection of language, it "is a suppressed articulation, ready to burst into speech. When the thought of an action excites us very much, we can hardly avoid the actual repetition, so completely are all the nervous circuits repossessed with the original currents of force" (ibid., p. 90). Bain (1855, p. 334) had already articulated the idea of a silent interior "nervous" speech, challenging the "old notion" which "supposes that the brain is a sort of receptacle of the impressions of sense, where they lie stored up in a chamber quite apart from the recipient apparatus, to be manifested again to the mind when occasion calls." He contrasts this with "the modern theory of the brain," which "suggests a totally different view":

We have seen that the brain is only one part of the course of nervous action; that the completed circles take in the nerves and the extremities of the body; that nervous action consists of a current passing through these complete circles, or to and fro between the ganglia and the organs of sense and motion; and that short of a completed course no nervous action exists. The idea of a cerebral closet is quite incompatible with the real manner of the working of nerve. Seeing then that a sensation in the first instance diffuses nerve currents through the interior of the brain outwards to the organs of expression and movement, the persistence of that sensation after the outward exciting cause is withdrawn, can only be a continuance of the same diffusive currents, perhaps less intense, but not otherwise different. (ibid., p. 332)

The “cerebral closet” that Bain rejects is the modern version of the back ventricle of mediaeval cell theory. It is an uncharacteristically biting metaphor from Bain – and it sparked a sarcastic response from a dissident French psychologist, Victor Egger, who wrote in his doctoral thesis on “inner speech” that in Bain

much too great importance is attributed to muscular movement, which is only a means, and which, as such, is neglected by the attention, whereas all the mental effort bears upon the sound, which is the goal of the movement and the essential element of speech. (Egger, 1881, p. 41)³

In one of the rare passages he [Bain] devotes to it, inner speech becomes a muscular-tactile image. This latter idea, unfortunately, has caught on; for there is today, among psychologists, a *touch school*, or, more precisely, a *muscle school*, which leads all the operations of the mind back willy-nilly to the active touch and the muscular sense. (ibid., p. 59)⁴

Egger fails to consider the reasons behind Bain’s nervous-muscular (not “tactile”) location of inner speech: the lack of physical evidence for any sort of “closet” in which is stored the memory of perceptions and productions, transferred from the original mode of perception and production to a mental image, something of an entirely different nature.

The question remains of where inner speech takes place. Bain posited a stark choice between nervous-organic association and a mental closet for storing representations. Egger’s response was one that would be neither the first nor the last to give: that the “where” question does not apply to inner speech. The question assumes a spatiality and extension that belong only to what is external. “Exteriority is the reason for spatiality” (ibid., p. 98).⁵ When speech is exteriorized, it has an extension, hence a location, outside the speaker. Inner speech though is only “localized in a vague and indeterminate way in the head [...]. But this is not what were just calling *localization*, when we

³ My translation, as are those that follow. Original: “une importance beaucoup trop grande est attribuée au mouvement musculaire, qui n’est qu’un moyen, et qui, comme tel, est négligé par l’attention [...], tandis que tout l’effort mental se porte sur le son, qui est le but du mouvement et l’élément essentiel de la parole.”

⁴ “dans un des rares passages qu’il lui consacre, la parole intérieure devient une image musculaire-tactile. Cette dernière idée, malheureusement, a fait fortune: car il y a aujourd’hui, parmi les psychologues, une *école du toucher* ou, pour mieux dire, une *école du muscle*, qui ramène de gré ou de force toutes les opérations de l’âme au toucher actif et au sens musculaire.”

⁵ “c’est l’extériorité qui est la raison de la spatialité.”

were speaking about outer speech; inner speech is not the object of a *special* localization in a *precise* place, that is to say a localization in the proper and ordinary sense of the word” (ibid., p. 102).⁶

The founding figure of modern linguistics, Ferdinand de Saussure, in general took the associationist approach, but diverged from it when discussing the location of language in his second and third courses in general linguistics of 1908-9 and 1910-11. Rather than follow Egger (whose work he knew) in equating knowledge of language with an inner speech that lacks extension, Saussure made use of three metaphors: *trésor*, *casier* and *magasin*, each denoting something akin to Bain’s closet. In the second course Saussure refers to

the inner treasury [*trésor*] that is equivalent to the closet [*casier*] of memory [...]; there we have what can be called the storehouse [*magasin*]. It is in this *trésor* that is arranged everything that can enter into activity in the second location. And the second location is discourse, the speech chain.⁷

The alternative view of linguistic knowledge as being at least partly neuro-muscular was lost from sight – but already, between Saussure’s death and the publication of his *Course in general linguistics*, there had appeared Watson’s (1914) momentous work on behaviourism, which abolished from its lexicon all terms relating to the mind, indeed to any aspect of human existence that is not directly observable to persons other than oneself. Its impact was felt strongly enough within linguistics to keep enquiry into the mental nature of language restricted, apart from in the USSR, at least until the death of its leading psycholinguist, Lev S. Vygotsky, in 1934.

When Noam Chomsky resuscitated enquiry into language and mind in the late 1950s and early 1960s, it was very much in the closet mode, as he insisted that knowledge of language must be autonomous from other modules (to use a slightly later term) of the mind/brain, which is to say closed off from them – his argument being that a speaker’s knowledge of the world is entirely detached from his or her linguistic knowledge as a native speaker. The Chomskyan closet contained a grammar and a lexicon, where the grammar was essentially pre-built into the closet itself, and the lexicon acquired piece by piece and filed away; although the grammar was not complete until enough lexical items, each with their grammatical specifications, were acquired to set the parameters which determined what language one was a native speaker of.

Chomsky also made it explicit that being cerebral means that the closet is a physical part of the brain – in Chomsky’s term, a language organ. In recent work Chomsky refers to his research programme as “biolinguistics” and describes its aim as the “discovery of the [...] internal mechanisms that generate linguistic expressions and determine their sound and meaning. The whole system would then be regarded as one of the organs of the body [...]” (Chomsky, 2007, p. 12). In contrast, Bain took the internal mechanisms to be spread through the sensorimotor system, including the brain as its

⁶ “est localisée d’une façon vague et indéterminée dans la tête [...]. Mais ce n’est pas là ce que nous appelions tout à l’heure *localisation*, quand nous parlions de la parole extérieure; la parole intérieure n’est pas l’objet d’une localisation *spéciale* dans un lieu *précis*, c’est-à-dire d’une localisation, au sens propre et ordinaire du mot.”

⁷ Saussure (1916, critical ed. by Engler 281, II R 89¹⁹⁹⁸): “**le trésor intérieur** qui équivaut aux casiers de la mémoire; c’est là ce qu’on peut appeler le magasin [...]. C’est dans ce trésor qu’est rangé tout ce qui peut entrer en activité dans le second lieu. Et le second lieu, c’est le discours, c’est la chaîne de la *parole*.” Nowadays *casier* usually refers to a pigeonhole or drawer, but these French and English words, including “closet,” had a different range of reference a century ago (see Joseph 2016b).

centre, but emphasizing how much of language, from learning to production and understanding, cannot be reduced to purely cerebral functions.

From the 1970s Chomsky began moving toward a “minimalist” revision of his model, in which language-specific grammatical rules based on innate Universal Grammar were jettisoned in favour of lexical specifications that were learned; all that remained of Universal Grammar was a handful of principles and parameters, eventually reduced to just one. This shift was not adequately absorbed into applied linguistics at the time; had it been, the concept of the native speaker could well have been rethought in quite a radical way. Instead, the 1980s saw applied linguistics still attempting to accommodate its models of second-language acquisition to the 1960s-style Chomskyan version, notably in Krashen & Terrell’s (1983) natural approach.

There was no widespread will to do otherwise, so strongly were applied linguists, like their theoretical counterparts, under the sway of the native speaker concept. Chomsky never overtly acknowledged any radical change in his position. Davies’s was a rare voice articulating demurral; his efforts were perhaps more hindered than helped by the idiosyncratic, self-published *Paikeday* (1985) making similar arguments about the quasi-racist undertones of the native speaker concept.

4 Extended mind and distributed cognition

The key question for Vygotsky was, given that language is a social phenomenon, indeed the social phenomenon *par excellence*, how to account for what *I* do with it, what *I* know of it. I after all use it when alone, writing in my diary, or just thinking to myself; even my inner speech has this social form to it. So it is not a case of each of us individually bringing our isolated mental components together to form some kind of social whole. Yet Western European and American linguistics would continue to act as though that were the case – that what is social in language is ultimately the sharing of an individual mental component. Sociolinguistics (on the history of which see Joseph, 2002, pp. 107-131) would not abandon this framework, but would break what is shared down into more specific systems discoverable within a language or a dialect, and how they align with differences in gender, age, social class and so on, then explore how these more finely-grained differences carry indexical meaning about the people of whose individual mental components they are a part (see Figueroa, 1994, for a critique of sociolinguistics for failing to challenge fundamentally the research agenda established by other approaches).

During the second half of the twentieth century the idea of cognition as a process of working out algorithms, done by a mind/brain increasingly conceived on the model of a computer, attained a dominance that linguistics helped to back up. Chomskyan grammar made vast claims about its ability to generate all the grammatical sentences of any language using a limited number of rules. The first widely-felt tremor to shake this view of the mind/brain came with work in Parallel Distributed Processing, based on an approach called connectionism (Rumelhart et al., 1986). It rejected the computer model of the brain and its chains of binomial switches, replacing them with “neural networks,” still metaphorical but approximating much more closely to the known physiology of the brain. The network consists of multiply interconnected neurons whose connections vary in “strength” or “weight” accordingly as they are activated and reinforced by exposure to patterns, following the basic principle established decades earlier by Hebb (1949): “When unit A and unit B are

simultaneously excited, increase the strength of the connection between them.” In this way the network is able to learn; and what is most significant, its recursive action allows it to teach itself how to learn – to write its own learning programs, as it were – with sufficient exposure to data, and starting with minimal cognitive “hardware.”

This approach brought a new impetus to research in several areas of linguistics, including language evolution, with computer programmes devised to recreate the sort of iterative learning that could explain how languages and cognition developed in tandem in the early history of the species. Connectionism allowed for a more central role to be allocated to environment (broadly defined) in a person’s cognitive development than the algorithmic model of cognition did. This opened the door to collaboration with “ecological psychologists” who, following up on the pioneering work of Gibson (1966), aim to take psychology out of the laboratory and into the actual environments in which people live and work. One strand of ecological psychology is the “enactivism” of Maturana & Varela (1993) and Varela, Thompson & Rosch (1991), focussed on the dynamic interaction of organisms and environments.

These developments also triggered a new wave of thinking within philosophy, where the understanding of cognition based on neural connections made by a whole person existing in an interactive environment, rather than computer-generated algorithms or a disembodied brain in a vat, led to the concept of the “extended mind.” Clark & Chalmers (1998) imagined a New Yorker called Otto, who suffers from a mild case of Alzheimer’s that has compromised his memory, not severely, but enough that he distrusts his recollection, and so always carries a thick notebook in which he writes down facts in case he needs to recall them later. Otto heard about an exhibition being put on at the Museum of Modern Art and decided to go. He believed the Museum was on 53rd Street, but before setting off checked his notebook as he always does before acting on anything he tentatively believes to be true. He only fully believes it – a requirement for “remembering” – after verifying it in the notebook. Clark & Chalmers contrast the process by which Otto remembers the Museum’s address from the process used by Inga, who does not have Alzheimer’s, and who also heard about the exhibition and decided to go. Inga thought, recalled that the Museum is on 53rd Street, and set off. She found the address, mentally, with no external help. Otto too located the address in his mind but, for him, his notebook is an integral and necessary part of his mental process of remembering. But it is external to his brain, transcranial.

Well, Clark & Chalmers ask, what if a microchip with the contents of the notebook is implanted in his brain and functions seamlessly with his biological process of remembering? We are already at the experimental stage with such “wetware upgrades.” The chip is intracranial. Is the information that comes via the chip still external to Otto’s mind, when it works seamlessly with his biological memory? If it is not external – if we accept that the microchip introduces an augmentation inseparable from Otto’s mental processes – then why should the same not be true of the notebook, which he always has with him and uses every time he tries to remember something, the same condition under which the microchip kicks in? What if the microchip is implanted not within Otto’s skull, but on the back of his neck? What indeed if it is in a device that he keeps in his pocket and that sends wireless signals to his brain?

What was the radical position in 1998 – that the notebook is part of Otto’s extended mind – is now mainstream, though either side of Clark there remain radicals and conservatives who differ on how

far we out we can go from Otto's ever-present notebook and still cogently assert that the texts and devices he interacts with are part of his extended mind. *Extended* implies a shift beyond the concept of mind as contained within the cranium – a sort of “embrained” theatre of representations and consciousness. “Minds are simply what brains do,” according to Minsky (1986, p. 287). Of course what brains do includes the sensorimotor functions of receiving and processing sense data from the rest of the body and sending signals for movement to the rest of the body. The question is, where in this loop does “mind” begin and end?

Distributed implies that cognitive functions do not have a single centre. In this general sense it ought to be applicable to an understanding of cognition as not strictly intracranial, but extending, as the brain itself physically does, through the body via the nervous system. In practice, however, discussions of distributed cognition have, like the more expansive interpretations of extended, passed beyond the body to examine the distribution of cognition to a person's social and physical environment. This is not surprising given that the origins of distributed cognition research lie within, not philosophy or psychology, but anthropology, notably with the work of Edwin Hutchins (see Hutchins, 1995).

The “distributed language movement” was launched with a 2003 conference and a special issue of *Language Sciences* in 2004. The organizers had detected a conceptual overlap between, on the one hand, extended and distributed cognition research, and on the other, Harris's integrationism, which starts from acts of communication as the primary given, and, while maintaining a biomechanical dimension, eliminates any need for mental representations, minds or indeed languages. As Orman (2015) puts it, the distributed language movement “Challeng[es] appeals to an individual language faculty,” and “instead promotes a social, collective view of language and human interactivity (see Cowley and Vallée-Tourangeau 2013) in which individual beings and actions are not the primary units of analysis.” That is well and good, and there are strong arguments for not making individuals the *primary* units of analysis where language is concerned. But ultimately individuals will be a unit of analysis, because a person stranded alone on a desert island remains a user of language in at least as full as sense as does someone with autism. And that brings us back to the question of where language is in that one person.

Thibault's (2011) integrationism-inspired approach combines distributionalism in the intersubjective sense with an assigning of as much as possible to sensorimotor mechanisms and processes that are otherwise left unspecified. The approach remains dependent on a dichotomy of first-order and second-order language that boils down to the individual and in-here of language on the one hand, and the social and the out-there on the other. Until this approach develops more specific proposals founded on substantive analytic concepts, it will have to be treated as programmatic, if promising (see also Steffensen, 2015).

Also worth mentioning in this context is “situated cognition,” an approach with roots in the ecological psychology of Gibson and the enactivism of Maturana & Varela mentioned above. It shares with distributed cognition the impulse to move away from thinking about mind as something stored in the individual, in favour of looking at how cognitive elements are constructed in particular instances by multiple actors. In addition, situated cognition aims to create a balance between cognition as computation and what it calls the affective dimensions of mental/bodily experience. Some of those working in situated cognition, like those in extended mind, draw inspiration from

Merleau-Ponty. Gee (1992, 2004) has contributed significant work with a situated/affective dimension in the field of applied linguistics, work that those in the distributed language movement have yet to match in terms of its specificity and usefulness.

The classical model of mind cannot accommodate the social except by turning it into a feature or image in the mind of the individual. For Freud it is represented by the super-ego; but the Freudian subconscious is effectively absent from the contemporary discourse on mind and language. Distributed and situated cognition treat the individual perspective as the dominant view that needs to be resisted. Extended cognition is more about expansion of than resistance to the individual, and in that regard comes closer to the concerns of Pierre Bourdieu, who focussed relentlessly on the problem of reconciling a belief in real agency with the fact that, as agents, we nevertheless make and carry out our choices within the contexts and constraints of a social world. Yet it is rare to encounter Bourdieu's name in the literature on cognition.⁸

Bourdieu adopted the classical concept of the *habitus*, "a set of dispositions which incline agents to act and react in certain ways" (Thompson, intro. to Bourdieu, 1991, p. 12).⁹ These dispositions sediment within us through social interaction from childhood onward, becoming a physical part of our nervous system and generating practices that are regular without being governed by any "rule." The habitus is inhabited by an active human agent who is defined by the system but, crucially, is not merely its passive object. The agent engages in exchanges of symbolic power with other agents, each of whose habitus is linked to the rest in the shared field. The problem Bourdieu was addressing is how to explain the actions agents undertake that are not deliberate, and the cases where they undertake a deliberate course of action but find themselves unable to achieve it because of their own strong dispositions.

Bourdieu applies this form of analysis specifically to language, and how the quasi-choice of particular way of speaking "challenges the usual dichotomy of freedom and constraint. The 'choices' of the habitus (for example, using the 'received' uvular 'r' instead of the rolled 'r' in the presence of legitimate speakers) are dispositions which, although they are unquestionably the product of social determinisms, are also constituted outside the spheres of consciousness and constraint" (Bourdieu, 1991, p. 51).

Agha's (2003) presentation of habitus as a quasi-behaviourist claim that habits rather than agency shape our choices and our actions makes it appear that there is a wide chasm between Bourdieu and linguistic anthropologists, when in fact the differences between them are really about which questions they have set out to answer. For Bourdieu, habitus is a model for understanding how we really do act as agents, making deliberate choices within the parameters of a social field that accords a value to our acts, a value of which we develop an instinctive, corporeal cognition through sedimented experience. Agha, like Silverstein (2003), wants to focus on the particular moments of exchange in which agency is performed linguistically, and to treat that agency as unconstrained and determining value anew on each occasion, within the "orders of indexicality" that appear to inhere in a context of institutional power, and ultimately in institutions themselves. The question of how an

⁸ Likewise for Vygotsky, who anticipated aspects of extended and distributed cognition that remain underappreciated. For a general overview of his work see van der Veer & Valsiner (1994).

⁹ The term's first appearance from Bourdieu's pen was in his translation of Panofsky (1967). Habitus had also figured in the work of Max Weber, Marcel Mauss, Edmund Husserl, Norbert Elias and Merleau-Ponty.

individual experiences such structures, central to Bourdieu's concerns, is left in the background. Agha wants to characterize them in terms of sedimentation from exchanges, a view that is really much closer to Bourdieu than Agha seems to appreciate.

5 Implications for the concept of the native speaker

The concept of native speaker as it has figured in applied linguistics – the native speaker as rejected by Davies – has been grounded in the intracranial view of cognition, and more specifically in its Chomskyan version, where linguistic knowledge constitutes an autonomous mental module with its basis in innate Universal Grammar (much reduced in recent versions, though the reduction has not been reflected in Chomsky's general conception of language). The importance of the innateness is intensified through its echo in the etymologically-related *native* of native speaker: both terms tie the individual's language to his or her birth. It is often pointed out that "native speaker" is a solecism, since one isn't born with a mother tongue, but learns whatever language he or she is exposed to when growing up. Despite considerable evidence from developmental psychology that foetuses are already sensitive to their mother's language *in utero* (e.g. DeCasper & Spence, 1986), a child of a Thai-speaking mother given up for adoption at birth to a Cambodian-speaking family does not grow up speaking Cambodian with a Thai accent. Within linguistic theory, the continued use of "native speaker" subtly strengthens the contention that innate Universal Grammar defines the underlying reality of every language (to the point that Chomsky maintains that there is only one human language, and what we normally call languages are merely dialects of it).

Any link of native speaker to birth implies a correlation with other sites of discrimination, particularly race. Add intracranialism to this, and it is as though something like race is being tied to something like IQ – even though Chomsky always linked Universal Grammar with every child's infinite linguistic creativity in an anti-racist way, as underscored by Labov's native speaker-based arguments in the Ann Arbor trial. But when the context is switched to that of the language learner being assessed against the criterion of the native speaker – in colonial and post-colonial settings where the learners are of a race that suffers discrimination in various forms, some of them bound up with a perception of intellectual inferiority – the intracranial native speaker becomes conceptually problematic, particularly with the add-on of Chomskyan nativism.

What, if anything, changes if intracranialism is abandoned in favour of extended and distributed cognition? In exploring this I shall focus on Bourdieu's habitus, because he applied it to issues involving language to a far greater degree than more recent psychologists and philosophers of extended mind have done, and attempted a fuller reconciliation of social and individual aspects of language than distributors have so far managed. Extended/distributed cognition frees us from a conception of language limited to representations stored in the brain, and from a research programme determined not to investigate its assumption that brains are born with a particular structure for storing such representations, that develops in an automatic way with minimal exposure to input data. This in turn frees us from any obligation to forget that the acquisition of our first language was a long apprenticeship occupying nearly all our waking moments during the first three or four years of our lives, and that has continued since.

In the course of this childhood apprenticeship, the knowledge we acquire becomes part not only of our memory but of our entire nervous system – our extended mind – which is to say part of our bodies. My first language does not set limits on what I am capable of thinking or doing, but it makes some things come more easily than others, makes certain inclinations more natural, while others require greater effort. To be a native speaker concerns an individual's position in the distributed cognition of language as it reflects the historical facts of his or her extended cognition, or habitus, the set of dispositions, schemata of action and perception that individuals acquire and incorporate through our social experience.

Thus the native speaker can be redefined without recourse to his or her linguistic competence. Instead, competence becomes a by-product of habitus. As Bourdieu put it, "The habitus – embodied history, internalized as a second nature and so forgotten as history – is the active presence of the whole past of which it is the product" (1990, p. 56). One can, with greater difficulty for some people than others, attain later in life a competence indistinguishable from that of a native speaker, without going through the whole apprenticeship which produces the native speaker's habitus. So long as the second language learner does not display the entire habitus that one expects as the accompaniment of native competence, he or she may remain native-like in the judgement of others, though it depends on the others with whom linguistic knowledge is distributed in a given context.

Davies was right to insist that it cannot be an objective or neutral move for us to make the native speaker the implicit goal of language teaching and the yardstick for assessing the proficiency of a non-native speaker, so long as the concept is bound up with the Chomskyan mind/brain of an idealized individual in a speech community where everyone is linguistically the same, combined with the political belief in native speaker equality as asserted by Labov in the Black English trial. The intent may not be to oppress any non-native speaker, but we do not assess policies based on intentions, only on their results. The result of taking native proficiency as the implicit goal of language teaching and testing is that the effort to learn a language is doomed to failure, in the sense that, however good a learner you are, you will never measure up to even a speaker of the most socially stigmatized non-standard form of the target language.

This is not only absurd but self-defeating. The instrumental vs integrative motivation distinction established in the 1960s was a way of saying that the chances of success in L2 learning increase as the learner feels the L2 as part of his or her *identity*, rather than just as a tool to be used for communicative purposes (see Norton, 2013). Casting it in terms of instrumental vs integrative is a reductionist way of putting it, because the dichotomy is often a false one: is a person who is striving to master English in order to get into Harvard Medical School doing this for instrumental purposes, if in fact her projected self as a future physician holding a prestigious degree is central to her personal identity? But the point remains that the "classic" conceptualization of the native speaker turns the integrational/identity-based drive, the key to success in language learning, into a mug's game. Learners can't win it, though to add injury to insult they can potentially come close enough to the goal to let them turn into oppressors, or accessories to oppression, of other L2 learners who are not quite as good at the mug's game as they are.

If, on the other hand, we redefine native speaker in the terms of habitus, with all that it captures concerning extended cognition, at least intra-corporally, does that actually help with the oppression problem? I believe it does, the reason being that habitus does not carry the conceptual baggage of

standardness, as grammatical knowledge does, nor the link with intellect, and certainly not the lingering traces of Chomskyan Universal Grammar. Extended cognition implies that a language proficiency assessment is not a measure of the amount of information stashed in a cerebral closet. It is a measure of the adaptation of a person's whole nervous system, the whole sensorimotor system. And distributed cognition implies that the assessment is a measure of something *beyond* the person being projected *back into* the person. It forces us to admit the artificiality of such measurement, while extended cognition, as *habitus*, likewise forces us to face the absurdity of giving a mark to a person's embodied history.

These are not forms of knowledge we possess means of quantifying or well-reasoned criteria for assessing. Language testing, Davies's specialized field, has been at the forefront of trying to develop such criteria, for instance through the instituting of group-based proficiency assessment in Hong Kong. Previous accounts of this type of assessment have associated it with communicative competence (Hymes, 1972; cf. Lam, 2015; Elder, McNamara et al., 2016), a concept that originated as an extension of Chomsky's grammatical competence and intended to remedy its limitations, but at the same time reproducing its basic structure. Hymes did not directly challenge the assumption that native speakers are ideally competent communicators, with no significant differences among individuals in this respect.

Pressure to change our approach to assessment has been building from another direction: the ethical imperative for anonymous examination. Here again the problem is that as examiners we cannot escape our position as a situated subject. We can repress any inclination to favour some of those whom we know or simply examine face-to-face and disfavour others, but we cannot eliminate all possibility of our *habitus* reacting to aspects of their *habitus* that are irrelevant to what is being assessed. The suggestion that we might solve the problem by returning to certain examination practices that were given up with difficulty in recent decades understandably brings a knee-jerk reaction from people involved in language teaching and testing, since they have spent the intervening period persuading their own students of the progress that has been made, and certainly more broadly-based proficiency assessment, including face-to-face interaction, allows for greater scope; but it also opens the door to the unintentional discrimination that is increasingly recognized as serious and problematic. What this suggests is that the next direction in language testing research should be to determine what aspects of language use can be assessed anonymously in order to create a profile of an individual's strengths and weaknesses, more fine-grained than a global score for speaking, reading etc., and taking as the implicit goal the set of skills in language use needed for a given job, successful completion of a particular university course, or whatever other purpose the assessment is being conducted for. A component of distributed cognition should be built in, by including virtual interaction in the assessment, or real-time interaction with other examinees, and with the data generated being presented to the assessor in a way that forestalls judgement of the speaker rather than of the use, the technology for which is already widely available.

The thrust of Davies's "native user" is to remove the object of linguistic enquiry and assessment from in here back to its traditional location out there. It is not, for Davies, all about native and non-native speakers, but about standard and non-standard language, and who uses which. The move from native speaker to native user is the applied linguistic equivalent of what extended and distributed cognition have been attempting to do. I expect that ultimately Davies would have gone further, abandoning native users in favour of talking about strengths and weaknesses in particular

areas of language use. In certain respects Davies's shift from native speaker to native user is comparable to Wittgenstein's shift to a theory of meaning as use, rather than as knowledge as representations embrained in a speaker.

But Davies was all too aware of the widespread resistance to giving up the common-sense concept of linguistic nativeness. All of us have grown up with it and had ample experience that, when fit into the conceptual framework it provides, appears to reinforce its reality and explanatory power. Again, the value of a concept cannot be separated from what one is trying to do with it. Native speaker has its uses; we do though need to be clear about what it entails conceptually. It cannot legitimately be used to shore up some of the very conceptions on which it rests, such as intracranialism and innateness. On the contrary, it needs to adapt as those conceptions shift.

Finally, what of the native speaker as liberator? That is the baby we risk throwing out with the bathwater – though as I write this I can imagine Alan Davies peering over my shoulder and muttering “Some baby...” Linguistics has been going through a comparable conundrum with its doctrine that “all languages are equally complex,” maintained dogmatically for decades following WWII because it provided an ideological firewall against any new attempt to turn linguistic differences into fraudulent evidence of racial inferiority. Noting that many younger linguists today find the racial implications simply absurd, and resent them as an anachronistic taboo on open-minded enquiry, Joseph & Newmeyer (2012) propose that any perceived danger can be neutralized if we just assert, as Franz Boas did, the absence of any link between the structure of a language and the intelligence or level of cultural development of its speakers. If someone then found a way to show convincingly that Language X is simpler than Language Y, we have eliminated the risk of this being turned against the speakers of either language in some oppressive or even genocidal way. Where the equality and authority of native speakers is concerned, we should take a similar stand to declare that equal educational opportunity is a principle of such absolute rightness that it does not need the pseudo-scientific backing of a dubious concept which, when it isn't liberating students, mainly in rich countries, is adding to the oppression of their counterparts in poor ones.

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